

*Stated Meeting, October 18, 1878.*

Present, 16 members.

Vice-President, Mr. FRALEY, in the Chair.

Dr. Muhlenberg, a newly elected member, was presented to the presiding officer and took his seat.

Letters accepting membership were received from Dr. Morris Longstreth, dated Philadelphia, 333 S. 12th street, October 7; Mr. J. B. Knight, Hall of the Franklin Institute October 7; and Mr. Samuel H. Scudder, Cambridge, Mass., October 4, 1878.

A letter acknowledging diploma of membership was received from Mr. A. Agassiz, dated Cambridge, Mass., July 9, 1878.

Letters of acknowledgment for publications received were read as follows: from the Holland Society of Sciences, Jan. 7, 1877 (I-VI, i; Proc. I, XIV, XVI); Royal Society, New South Wales, Sydney, September 9 (100; List).

The following receipts for Proceedings No. 101: Essex Institute; Providence Franklin Society and Society for the Encouragement of Industry; New Bedford Library; Amherst College; Yale College; Surgeon-General's Office; U. S. Naval Academy; Smithsonian Institution; Kansas State Historical Society; Messrs. G. L. Vose, Jacob Bigelow, M. D., Dr. Walcott Gibbs, T. P. James, Dr. Asa Gray, E. N. Horsford, Jas. B. Francis, Dr. Pliny Earle, Jas. D. Dana, O. C. Marsh, H. A. Newton, Geo. G. Brush, Wm. P. Blake, J. S. Newberry, Dr. W. A. Hammond, W. H. Green, Wm. Blasius, Pliny E. Chase, T. P. Porter, George Smith, C. F. Himes, J. F. Carll, F. V. Hayden, Simon Newcomb, Dr. Theodore Gill, C. A. Schott, Admiral J. Downes, E. Goodfellow, W. B. Taylor, J. H. C. Coffin, J. M. Hart, J. L. Campbell, Daniel Kirkwook, A. H. Worthen, Dr. Robt. Peter, J. D. Whitney, J. F. Clarke, and Dr. E. Jarvis.

Also receipts for Catalogue, as follows: Boston Public Library (Part III); Amer. Antiquarian Society (Part III); Wisconsin State Historical Society (Part III); Regents of the University of New York (Part I); and the U. S. Naval Observatory (Parts I, II, III).

A letter requesting exchange of catalogues was received from the Public School Librarian at St. Louis.—On motion the exchange was ordered.

Letters of envoy were received from the Royal Society of New South Wales, Sydney, Sept. 11, 1878; Royal Bavarian Academy, Munich, March 30, 1878; and Holland Society of Sciences, Harlem, Jan., 1877.

A letter was received from Mr. Walter White, Assistant Secretary of the Royal Society, dated London, Sept. 23d, 1878, presenting a copy in bronze of the newly instituted Davy Medal; and letters from the U. S. Department of State transmitting the same.

Donations for the Library were received from the R. Bavarian Academy; R. Accademia dei Lincei; R. Academy at Lisbon; Kansas Academy at Topeka; and Academy at San Francisco; the Department of Mines, Melbourne; Royal Danish Society; *Revue Politique*, and M. M. Delesse and Lapparant, Paris; *London Nature*; Mr. O. Fisher, F. G. S.; Essex Institute; Boston Society of Natural History; Harvard College; American Antiquarian Society; Yale College; Prof. Geo. J. Brush; Ed. S. Dana; Lyceum of New York, (N. Y. Academy of Natural Science); Prof. J. S. Newberry; *Polytechnic Review*; Brooklyn Entomological Society; Franklin Institute; *American Journal of the Medical Sciences*; *Medical News and Library*; *Penn Monthly*; Prof. E. D. Cope; Dr. J. B. Cox; Mr. Edwin A. Barber; U. S. Coast Survey; U. S. Engineer Department; Bureau of Education; Weather Bureau; University of Virginia; Georgia Historical Society; Kansas State Horticultural Society; Ministerio de Fomento, and Geological and Statistical Society, Mexico; and Ministerio de Fomento, Madrid.

A bronze medal, a copy of the newly instituted Davy

Medal, was presented to the Cabinet by the Royal Society of London. On the obverse a head of Sir Humphrey Davy. On the reverse the following legend:—"The Royal Society to Robert Wilhelm Bunsen. Gustav Robert Kirchhoff. In accordance with the will of Humphrey Davy, who devoted the testimonial presented to him by the Coalowners of the Tyne and Wear to the encouragement of Chemical research—1877."

The Secretary offered for publication in the Transactions a memoir entitled, "The Upper Carboniferous Flora of West Virginia. With 23 plates. By W. M. Fontaine and I. C. White," and exhibited proof sheets of the quarto plates.—On motion the paper was referred for examination and report to Dr. Leidy, Dr. J. S. Newberry, and Mr. Lesquereux.

The Secretary read by title a communication entitled "On the limiting Constant of Gravitation. By Pliny E. Chase."

Prof. Lesley read a communication entitled "Notes on a series of analyses of the Dolomitic Limestone rocks of Cumberland Co., Pa."—The subject was discussed by Dr. König, Prof. Frazer, and Mr. Walter.

Mr. Briggs read from a MSS. part of his discussion of the economical problem of force and fuel applied to Electric Lighting as compared with Lighting by Coal Gas.

Mr. Briggs invited attention to the remarkable fact that all the exhibitors of Artificial Ice Machines at Paris (six in number, of which Pictet's seems to be best) claimed for their several machines twice or three times the maximum efficiency to be expected, if the accepted theory of the coefficient of heat be true.

Prof. Frazer communicated the fact that in his use of the local telephone circuit during the Summer he had observed a continued resonance of over tones.

In the course of some experiments on a telephone line with a view to decrease the crackling due to atmospheric disturbance, an observation was made by Prof. Frazer which will seem to illustrate to what an infinitesimal motion the sounds heard through the telephone are sometimes due. A telephone was selected in which the diaphragm was held fast at only two

or three points instead of on a flat surface, which usually binds the outside of the metal plate. The diaphragm gave to one note a clear resonance, in which the overtones so characteristic of metal plates in vibration were distinctly heard (middle A of piano). On sounding this note into the mouthpiece, while keeping the other telephones covered so as not to be directly affected by the air-waves, it was found that the overtones were audibly traceable in one of the other telephones with which connection was had over a line of about one-third of a mile with a ground return circuit.

It is difficult enough to understand how the minute waves into which a metal plate is thrown by a vigorous note of the voice can reproduce sound through the intermediate agency of maxima and minima of resistance in the medium of current transmission; but that the minute wavelets which are produced upon the backs of these, should at the extremity of a long line produce sufficiently powerful variations of conductivity to cause the mechanical fluttering of the diaphragm of another instrument to a sufficient degree to cause the effect of sound could scarcely have been foreseen.

Pending nominations 864, 867, 868, 869, 870, and new nomination 871 were read.

In the absence of Prof. Houston the consideration of his motion to amend the minutes was postponed to the next regular meeting.

The Secretary read a letter from Prof. Henry Morton, dated Hoboken, Oct. 7., drawing attention to a marked word, "*Foucou's*," in an enclosed original letter, written to him by Prof. Sadtler, dated Dec. 31, 1877; and for the purpose of showing that he (Prof. Morton) did Prof. Sadtler no injustice in quoting this word (instead of *Fouqué*) in his letter of May 15, 1878, commented upon in Prof. Sadtler's reply as published in the Proceedings A. P. S., Vol. XVII, page 724.

The pending nominations 864, 867 to 870 were balloted for, and, after scrutiny of the ballot boxes by the presiding officer, the following were declared duly elected members of the Society:—

Dr. Albert H. Smith, of Philadelphia.

Rev. Saml. Longfellow, of Germantown.

Rev. Ed. A. Foggo, D. D., of Philadelphia.

M. A. Descloizeaux, of Paris.

Dr. C. Schorlemmer, of Manchester, England.

and the meeting was adjourned.